

Set of Claims

1. A method for enhancing effectiveness of rotor blade of wind energy device, **characterized in that** a rotor blade is made in the form of a wing with a thick aerodynamic profile and a vortex system for control of the boundary layer is arranged on the rear part of the blade opposite the side facing the wind, this system consisting of longitudinal cavities with central bodies forming annular channels, and suction withdrawal of air is carried out from the cavities and central bodies through air vents into receivers, which are connected by air ducts to a low pressure receiver inside the blade, air from which due to centrifugal forces of a rotating blade and also because of the difference in pressure occurring at a blade shank and end of the blade because of the large sum velocity of the air at the end of the rotating blade, is sucked out to the end of the blade through an air duct, wherein plates limiting the air flow flowing off along the blade are mounted inside the cavity and on the outer surface of the blade.
2. The method according to claim 1, **characterized in that** the low pressure receiver is combined with the cavity receivers and the receivers of the central bodies and suction withdrawal of air takes place from it into the environment.
3. The method according to claim 1, **characterized in that** the low pressure receiver is combined with the cavity receivers and suction withdrawal of the air takes place from it and the receivers of the central bodies into the environment.
4. The method according to claim 1, **characterized in that** the low pressure receiver is combined with the receivers of the central bodies and suction withdrawal of the air takes place from it and the cavity receivers into the environment.
5. The method according to claim 1, **characterized in that** in order to optimize the value of the suction withdrawal of air from the low pressure receiver, from the cavity receivers and the receivers of the central bodies at different modes of rotation of the rotor of the WED and for effective neutralization of the action of excessively high speeds of the wind on the rotor of the WED, elements controlling the consumption of air are mounted on air lines.
6. The method according to claim 1, **characterized in that** the withdrawal of air is carried out by means of a turbine.
7. The method according to claim 1, **characterized in that** air is blown into the vortex rotating in the cavity of the blade.
8. A method of enhancing the effectiveness of operation of a rotor blade of a wind energy device, **characterized in that** suction withdrawal of air to the end of a blade is carried

out from each cavity due to centrifugal forces of a rotating blade, and also because of pressure difference occurring at the blade shank and end of the blade because of the high sum speed of air at the end of the rotating blade, wherein the rotor blade is made in the form of a wing with a thick aerodynamic profile and a vortex system for control of the boundary layer, consisting of longitudinal cavities, is arranged on the rear part of the blade from the side opposite the wind.

9. The method according to claim 8, **characterized in that** from each cavity through air vents with elements controlling air consumption, suction withdrawal of air is carried out into the low pressure receiver, air from which due to centrifugal forces of a rotating blade and also due to pressure difference occurring at the blade shank and end of the blade as a result of a high sum speed of the air at the end of the rotating blade, is suction withdrawn to the end of the blade through an air line.

10. The method according to claim 8, **characterized in that** plates are mounted inside the cavity and on the outer surface of the blade to limit the air flow flowing off along the blade.

11. The method according to claim 8, **characterized in that** suction withdrawal of air is carried out by means of a turbine.

12. The method according to claim 8, **characterized in that** blowing air is carried out in the vortex rotating in the cavity of the blade.